



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,560	05/16/2006	Kazuyuki Yamane	2006_0735A	3249

513 7590 04/01/2011
WENDEROTH, LIND & PONACK, L.L.P.
1030 15th Street, N.W.,
Suite 400 East
Washington, DC 20005-1503

EXAMINER	
PIERY, MICHAEL T	

ART UNIT	PAPER NUMBER
1742	

NOTIFICATION DATE	DELIVERY MODE
04/01/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com
coa@wenderoth.com

Office Action Summary	Application No. 10/579,560	Applicant(s) YAMANE ET AL.	
	Examiner MICHAEL T. PIERY	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7 July 2010 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 1742

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al. (US 6,090,860) in view of Shiiki et al. (US 6,673,403), Schwartz, Jr. (US 5,395,858) and Bigg et al. (US 2002/0123546).

Regarding claims 1 and 2, Peters teaches a method of recycling a laminate shaped product including breaking a shaped structure (column 5, lines 9-12) having a laminate structure including at least one barrier layer and a principal resin layer (column 3, lines 5-17), storing the broken pieces in a moisturizing environment (column 5, lines 14-16), and washing the broken pieces with alkaline water (water with basic compound, column 1, lines 45-50, where the basic compound is alkali metal, claim 5) to remove the barrier layer (column 7, lines 7-36) and recovering the principal resin (column 6, lines 9-11). Peters teaches physically separated plastics can be further separated using those methods known in the art (column 5, line 58-column 6, line 7) but does not explicitly teach the further separation is complete dissolution through hydrolysis. Schwartz, however, teaches is known to separate polyester resin from a principal resin (column 10, lines 30-45) using complete hydrolysis through dissolution (column 5, lines 6-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to use the separation step of Schwartz because the separation step of Schwartz allows for recovery of the original components of the polyester (column 3, lines 26-30)

Art Unit: 1742

and the principal resin (column 9, lines 29-39; the impurities and contaminants include the principal resin).

Peters teaches using a gas barrier layer but does not explicitly teach the barrier layer is aliphatic polyester resin. Shiiki, however, teaches a known gas barrier layer is polyglycolic acid (column 4, lines 14-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to use the barrier of Shiiki because substitution on known barrier layers is within routine skill of one in the art (MPEP 2144.06).

Peters teaches storing the broken pieces in a moisturizing environment, but does not explicitly the moisturizing environment adjusts the moisture content of the polyester resin layer to 1 weight %. Bigg, however, teaches increasing the moisture content of polyester resin increases the degradation rate (0018, 0020 and 0022). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to increase the moisture content in the polyester resin, as taught by Bigg, because the increased degradation rate reduces the time required for the recycling process. It would have been obvious to modify the process of Peters to adjust the moisture content of the barrier layer resin to 0.1 wt. % because it has been held that optimization of a result effective variable is within routine skill of one in the art (MPEP 2144.05). Moisture content is a result effective variable because the yield of the hydrolysis reaction is dependent on the amount of water contained in the polymer (Bigg, 0023).

Regarding claim 3, Peters teaches immersion in water (column 5, lines 15-17).

Regarding claims 4 and 5, Peters teaches washing the broken pieces with 1-3% caustic soda (sodium hydroxide) at 70-98°C (column 8, lines 18-23; column 13, lines 10-11).

Art Unit: 1742

Regarding claim 6, Peters does not explicitly teach using alkaline water containing at least 1 equivalent with respect to the resin in the broken pieces. It would have been obvious, however, to modify the process of Peters to use at least 1 equivalent alkaline water to resin because it has been held that optimization of a result effective variable is within routine skill of one in the art (MPEP 2144.06).

Regarding claim 7, Peters teaches the alkaline water has a surfactant (column 8, line 64).

Regarding claim 8, Peters teaches using a gas barrier layer but does not explicitly teach the barrier layer is aliphatic polyester resin. Shiiki, however, teaches a known gas barrier layer is polyglycolic acid (column 4, lines 14-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to use the barrier of Shiiki because substitution on known barrier layers is within routine skill of one in the art (MPEP 2144.06).

Regarding claim 9, Peters teaches the principal resin is PET (column 4, line 44).

Regarding claim 10, Peters does not explicitly teach the order of layer of the laminated article. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to modify the process of Peters to have the principal resin/PGA/principal resin laminate because it has been held that rearrangement of process steps (lamination order) is within routine skill of one in the art (MPEP 2144.04).

Regarding claim 11, Peters teaches the barrier layered is colored (column 2, lines 56-59).

Response to Arguments

Art Unit: 1742

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. PIERY whose telephone number is (571)270-5047. The examiner can normally be reached on M-Th 8:30-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael T Pierey/
Examiner, Art Unit 1742

/Monica A Huson/
Primary Examiner, Art Unit 1742